

Serial Number 10/501,327

AMENDMENTS TO SPECIFICATION

Please amend the following paragraph of the specification:

Page 8, lines 15-25:

~~As is known, the definition of the integral-sinus function is:~~

$$[[\text{Si}(x) = \int_0^x \frac{\sin y}{y} dy .]]$$

~~The comprehensive mathematical expression of the field distribution onto detector 10 given by:~~

$$[[E'E = R_0 \exp(-j2k_0(f_1 + f_2)) \exp(j\pi/2) \sqrt{f_1/f_2} \{ \text{Si}(\frac{2\pi w_{lo}}{lf_2}(x + \frac{f_2}{f_1} \frac{w_{strip}}{2})) - \text{Si}(\frac{2\pi w_{hi}}{lf_2}(x + \frac{f_2}{f_1} \frac{w_{strip}}{2})) - \text{Si}(\frac{2\pi w_{lo}}{lf_2}(x - \frac{f_2}{f_1} \frac{w_{strip}}{2})) + \text{Si}(\frac{2\pi w_{hi}}{lf_2}(x - \frac{f_2}{f_1} \frac{w_{strip}}{2})) \} .]]$$

A mathematical modelling analysis of the optical system behaviour reveals that field distribution detector 10 is a continuous function, more particularly a sum of four integral-sinus functions[[,]] ~~the field intensity or square of the above field distribution function being plotted in Fig. 5a. Two of them the four integral-sinus functions~~ become zero at point $x = -\frac{f_2}{f_1} \frac{w_{strip}}{2}$ (and hence they are

associated with a first edge of object 5), and the other two are identical to the first two functions but have opposite sign and become zero at point $x = +\frac{f_2}{f_1} \frac{w_{strip}}{2}$ (and hence they are associated

with the second edge). The two functions of each pair have relative maxima and minima oscillating at different frequencies, which are inversely proportional to constructional dimensions w_{lo} and w_{hi} of filter 8.